What is Claimed is:

1. A method of cardiac surgery on a heart within a chest of a patient, the chest having a sternum and a plurality of ribs, each rib being separated from an adjacent rib by an intercostal space, the method comprising the steps of:

making at least one access port into the chest through an intercostal space, a first aspect of the heart facing the access port, and a second aspect of the heart facing away from the access port;

introducing a retraction instrument through the access port; and

manipulating the retraction instrument to reposition the heart within the chest into a retracted position wherein the second aspect of the heart is facing the access port;

wherein the ribs and sternum remain intact during each of said steps.

2. The method of claim 1 wherein the access port is made in a left lateral portion of the chest and wherein the first aspect of the heart comprises a left lateral aspect.

3. The method of claim 2 wherein the second aspect of the heart comprises an aspect of the heart selected from a posterior aspect, a right lateral aspect, and an anterior aspect.

4. The method of claim 1, further comprising the step of:

visualizing the heart with a visualization instrument introduced into the chest of the patient through a second access port positioned within an intercostal space.

5. The method of claim 1, further comprising the step of:

anastomosing a vascular graft onto a coronary artery on the heart while the heart is in the retracted position.

6. The method of claim 5, wherein the anastomosing step comprises the substep of introducing an anastomosing instrument into the chest of the patient through an access port within an intercostal space.

7. The method of claim 5, wherein the anastomosing step comprises anastomosing the vascular graft onto a circumflex artery.

8. The method of claim 5, wherein the anastomosing step comprises anastomosing the vascular graft onto a right coronary artery.

9. The method of claim 5 wherein the anastomosing step comprises anastomosing the vascular graft onto a posterior descending coronary artery.

10. The method of claim 5, wherein the vascular graft is selected from the group including a left internal mammary artery, a right internal mammary artery, a gastroepiploic artery, a radial artery, a saphenous vein, and a prosthetic vascular graft.

11. The method of claim 5 further comprising the step of:

dissecting an internal mammary artery from an anterior wall of the patient's chest; and wherein the anastomosing step comprises anastomosing the internal mammary artery onto the coronary artery.

12. The method of claim 5, further comprising the step of:

anastomosing a second vascular graft onto a second coronary artery using an anastomosing instrument introduced through an access port within an intercostal space.

13. The method of claim 12 wherein the second vascular graft is selected from the group including a left internal mammary artery, a right internal mammary artery, a gastroepiploic artery, a radial artery, a saphenous vein, and a prosthetic vascular graft.

14. The method of claim 13 wherein the second coronary artery comprises a left anterior descending coronary artery.

15. The method of claim 13 wherein the second coronary artery comprises a circumflex artery.

16. The method of claim 13 wherein the second coronary artery comprises a right coronary artery.

17. The method of claim 12 further comprising repositioning the heart into a second retracted position using said retraction instrument before the step of anastomosing a second vascular graft.

18. The method of claim 1 wherein the manipulating step comprises the substep of applying a vacuum between a surface of the retraction instrument and a surface of the heart to grip the heart with the retraction instrument.

19. The method of claim 1 wherein the manipulating step comprises the substep of lifting the heart with a rigid finger on the retraction instrument.

20. The method of claim 1 wherein the manipulating step comprises the substeps of placing a flexible loop on the retraction instrument around the heart and tightening the loop.

21. The method of claim 1 wherein the manipulating step comprises rotating the heart.

22. The method of claim 21 wherein the heart is rotated about an axis extending longitudinally through the heart from an aortic root generally toward an apex of the heart..

23. The method of claim 21 wherein the heart is rotated about an axis disposed at an acute angle between 0∞ and 90∞ relative to a longtitudinal axis extending from an aortic root toward an apex of the heart.

24. The method of claim 1, further comprising the step of:

partitioning an ascending aorta of the patient, paralyzing the heart, and maintaining circulation of oxygenated blood in the patient.

25. The method of claim 24 wherein the partitioning step comprises the substep of introducing an intraluminal occlusion device into a peripheral artery of the patient, transluminally advancing the intraluminal occlusion device into the ascending aorta and occluding the ascending aorta between the patient's coronary ostia and brachiocephalic artery.

26. The method of claim 1 wherein the introducing step comprises the substeps of inserting the retraction instrument through the access port in a predeployed state and deploying the retraction instrument into a deployed state within the chest of the patient.

27. The method of claim 26 wherein the retraction instrument has a profile in the predeployed state which is smaller than its profile in the deployed state.

28. The method of claim 27 wherein the profile in the predeployed state has a diameter of less than about 12 mm.

29. A method of retracting a heart within a chest of a patient, the chest having a sternum and a plurality of ribs, each rib being separated from an adjacent rib by an intercostal space, the method comprising the steps of:

making at least one access port into the chest through an intercostal space;

introducing a retraction instrument through the access port;

applying a vacuum between a surface of the retraction instrument and a surface of the heart to grip the heart with the retraction instrument; and

manipulating the retraction instrument to reposition the heart within the chest of the patient;

wherein the ribs and sternum remain intact during each of said steps.

30. The method of claim 29 wherein the step of applying a vacuum comprises applying a vacuum through a suction cup attached to the retraction instrument.

31. The method of claim 29 wherein the step of manipulating comprises engaging the surface of the heart with a textured surface on the retraction instrument to reduce slippage of the retraction instrument on the surface of the heart.

32. The method of claim 29 wherein the access port is positioned so that a first aspect of the heart is facing the access port, and a second aspect of the heart is facing away from the access port, the step of manipulating comprising repositioning the heart so that the second aspect of the heart is facing the access port.

33. The method of claim 32 wherein the access port is positioned in a left lateral side of the patient's chest, the first aspect of the heart comprising a left lateral aspect of the heart.

34. The method of claim 33 wherein the heart is repositioned so that an anterior aspect of the heart is facing the access port.

35. The method of claim 33 wherein the heart is repositioned so that a posterior aspect of the heart is facing the access port.

36. The method of claim 33 further comprising performing a surgical procedure on a third aspect of the heart through a second access port positioned within an intercostal space.

37. The method of claim 35 wherein the surgical procedure comprises anastomosing a vascular graft to a coronary artery on the third aspect of the heart.

38. The method of claim 36 wherein the coronary artery is selected from the group including the right coronary artery, posterior descending artery, the left anterior descending coronary artery, and the circumflex artery.

39. The method of claim 36 wherein the vascular graft is selected from the group including an internal mammary artery, a gastroepiploic artery, a radial artery, a saphenous vein, and a prosthetic vascular graft.

40. The method of claim 36 wherein the second access port is disposed in an anterior side of the patient's chest.

41. The method of claim 29 wherein the step of manipulating comprises rotating the heart about a longitudinal axis extending from an aortic root generally toward an apex of the heart.

42. The method of claim 29 wherein the introducing step comprises the substeps of inserting the retraction instrument through the access port in a predeployed state and deploying the retraction instrument into a deployed state within the chest of the patient.

43. The method of claim 42 wherein the retraction instrument has a profile in the predeployed state which is smaller than its profile in the deployed state.

44. The method of claim 43 wherein the profile in the predeployed state has a diameter of less than about 12 mm.

45. A method of cardiac surgery on a heart within a chest of a patient, the chest having a sternum and a plurality of ribs, each rib being separated from an adjacent rib by an intercostal space, the method comprising the steps of:

making at least one access port into the chest through an intercostal space;

introducing a myocardial cooling device through the access port; and

cooling the patient's heart using the myocardial cooling device;

wherein the ribs and sternum remain intact during each of said steps.

46. The method of claim 45 wherein the introducing step comprises the substeps of inserting the myocardial cooling device through the access port in a predeployed state and deploying the myocardial cooling device into a deployed state within the chest of the patient.

47. The method of claim 46 wherein the myocardial cooling device has a profile in the predeployed state which is smaller than its profile in the deployed state.

48. The method of claim 47 wherein the profile in the deployed state has a diameter of less than about 12 mm.

49. The method of claim 46 wherein the deploying step comprises the substep of inflating the myocardial cooling device with a cooling fluid.

50. The method of claim 46 wherein the deploying step comprises the substep of extending the myocardial cooling device from within a sheath.

51. The method of claim 45 wherein the cooling step comprises the substep of positioning the myocardial cooling device in thermal contact with the patient's heart.

52. The method of claim 45 wherein the cooling step comprises the substep of circulating a cooling fluid through the myocardial cooling device.

53. The method of claim 45, further comprising the step of:

anastomosing a vascular graft onto a coronary artery on the patient's heart using an anastomosing instrument introduced through an access port within an intercostal space.

54. The method of claim 45, further comprising the step of:

introducing a retraction instrument into the patient's chest through an access port within an intercostal space; and

manipulating the retraction instrument to reposition the heart within the patient's chest.

55. A method of performing coronary artery bypass graft surgery at a surgical site on a heart within a chest of a patient, the chest having a sternum and a plurality of ribs, each rib being separated from an adjacent rib by an intercostal space, the method comprising the steps of:

making first and second access ports into the chest through at least one intercostal space, the surgical site being on an aspect of the heart facing away from the first access port;

introducing a retraction instrument through the second access port;

manipulating the retraction instrument to reposition the heart within the chest into a retracted position wherein the aspect of the heart containing the surgical site is facing the first access port; and

anastomosing a vascular graft to a coronary artery at the surgical site using an anastomosing instrument introduced through the first access port;

wherein the ribs and sternum remain intact during each of said steps.

56. The method of claim 55 wherein the second access port is made in a left lateral portion of the chest.

57. The method of claim 55 wherein the first access port is made in an anterior portion of the chest.

58. The method of claim 57 wherein the aspect of the heart is selected from the group including a posterior aspect, a right lateral aspect, and a left lateral aspect.

59. The method of claim 55, further comprising the step of:

visualizing the heart with a visualization instrument introduced into the chest of the patient through a third access port positioned within an intercostal space.

60. The method of claim 55 wherein the anastomosing step comprises anastomosing the vascular graft onto a circumflex artery.

61. The method of claim 55, wherein the anastomosing step comprises anastomosing the vascular graft onto a right coronary artery.

62. The method of claim 55 wherein the anastomosing step comprises anastomosing the vascular graft onto a posterior descending coronary artery.

63. The method of claim 55, wherein the vascular graft is selected from the group including a left internal mammary artery, a right internal mammary artery, a gastroepiploic artery, a radial artery, a saphenous vein, and a prosthetic vascular graft.

64. The method of claim 55 further comprising the step of:

dissecting an internal mammary artery from an anterior wall of the patient's chest; and wherein the anastomosing step comprises anastomosing the internal mammary artery onto the coronary artery.

65. The method of claim 64 wherein the step of dissecting comprises dissecting the right internal mammary artery from an anterior wall of the chest using a dissection instrument introduced through an access port in an intercostal space in a right lateral portion of the chest.

66. The method of claim 64 further comprising routing the right internal mammary into a left portion of the chest using a grasping instrument introduced through an access port in an intercostal space.

67. The method of claim 66 wherein the right internal mammary artery is routed through a transverse epicardial sinus of the patient into the left portion of the chest.

68. The method of claim 67 wherein the grasping instrument is introduced through an access port in a left lateral portion of the chest, further comprising tunneling the grasping instrument through the transverse epicardial sinus into a right portion of the chest before the step of routing.

69. The method of claim 55, further comprising the step of:

anastomosing the vascular graft onto a second coronary artery using an anastomosing instrument introduced through an access port within an intercostal space.

70. The method of claim 69, wherein the first anastomosing step comprises creating a side-to-side anastomosis between the vascular graft and the coronary artery and the second anastomosing step comprises creating an end-to-side anastomosis between the vascular graft and the second coronary artery.

71. The method of claim 55, further comprising the step of:

anastomosing a second vascular graft onto a second coronary artery using an anastomosing instrument introduced through an access port within an intercostal space.

72. The method of claim 84 wherein the second vascular graft is selected from the group including a left internal mammary artery, a right internal mammary artery, a gastroepiploic artery, a radial artery, a saphenous vein, and a prosthetic vascular graft.

73. The method of claim 71 wherein the second coronary artery is selected from the group including a left anterior descending coronary artery, a circumflex artery, a right coronary artery, and a posterior descending coronary artery.

74. The method of claim 71, further comprising the step of:

anastomosing the second vascular graft onto a third coronary artery.

75. The method of claim 74, wherein the second anastomosing step comprises creating a side-to-side anastomosis between the second vascular graft and the second coronary artery and the third anastomosing step comprises creating an end-to-side anastomosis between the second vascular graft and the third coronary artery.

76. The method of claim 55 wherein the manipulating step comprises the substep of applying a vacuum between a surface of the retraction instrument and a surface of the heart to grip the heart with the retraction instrument.

77. The method of claim 55 wherein the manipulating step comprises the substep of lifting the heart with a rigid finger on the retraction instrument.

78. The method of claim 55 wherein the manipulating step comprises the substeps of placing a flexible loop on the retraction instrument around the heart and tightening the loop.

79. The method of claim 55 wherein the manipulating step comprises rotating the heart.

80. The method of claim 79 wherein the heart is rotated about an axis extending longitudinally through the heart from an aortic root generally toward an apex of the heart..

81. The method of claim 79 wherein the heart is rotated about an axis disposed at an angle between 0∞ and 90∞ relative to a longtidudinal axis extending from an aortic root toward an apex of the heart.

82. The method of claim 55, further comprising the step of:

cooling the patient's heart with a myocardial cooling device inserted into the chest of the patient through an access port in an intercostal space.

83. The method of claim 55, further comprising the step of:

partitioning an ascending aorta of the patient, paralyzing the heart, and maintaining circulation of oxygenated blood in the patient.

84. The method of claim 83 wherein the partitioning step comprises the substep of introducing an intraluminal occlusion device into a peripheral artery of the patient, transluminally advancing the intraluminal occlusion device into the ascending aorta and occluding the ascending aorta between the patient's coronary ostia and brachiocephalic artery.

85. The method of claim 55 wherein the introducing step comprises the substeps of inserting the retraction instrument through the access port in a predeployed state and deploying the retraction instrument into a deployed state within the chest of the patient.

86. The method of claim 85 wherein the retraction instrument has a profile in the predeployed state which is smaller than its profile in the deployed state.

87. The method of claim 86 wherein the profile in the predeployed state has a diameter of less than about 12 mm.

88. The method of claim 55 wherein the step of anastomosing comprises forming an opening in the coronary artery with a cutting instrument introduced through an access port in an intercostal space, and attaching the vascular graft to the coronary artery around the opening.

89. The method of claim 88 wherein the step of attaching comprises suturing the vascular graft to the coronary artery using a suturing instrument introduced through an access port in an intercostal space.

90. The method of claim 88 wherein the step of attaching comprises introducing a suture into the chest of the patient through an access port in an intercostal space and suturing the vascular graft to the coronary artery with the suture.

91. The method of claim 90 wherein the suture has a first end and a second end, a first needle attached to said first end and a second needle attached to said second end, said suture having a length of about 8 to 10 centimeters, and wherein the step of attaching comprises tying the suture within the chest of the patient using a suturing instrument introduced through an access port in an intercostal space.

92. The method of claim 55 further comprising the step of dissecting a gastroepiploic artery within an abdomen of the patient to create a free end thereof, and routing the free end into the chest, the step of anastomosing comprising anastomosing the free end to the coronary artery.

93. The method of claim 92 wherein the step of dissecting comprises dissecting the gastroepiploic artery using a dissection instrument introduced into the abdomen an access cannula positioned in a wall of the abdomen.

94. The method of claim 93 wherein the step of dissecting further comprises visualizing the interior of the abdomen using a scope introduced through an access cannula into the abdomen.

95. The method of claim 92 wherein the step of routing comprises creating an opening in a diaphragm of the patient between the abdomen and the chest, and introducing the free end of the gastroepiploic artery through the opening into the chest.

96. A myocardial cooling device comprising:

a shaft having a proximal end, a distal end, and at least a first lumen therebetween; and

an inflatable bladder attached to the distal end of the shaft and having at least one cooling passage therethrough in communication with the first lumen, said inflatable bladder having a predeployed state and a deployed state, wherein said inflatable bladder is insertable through an access port in an intercostal space when in said predeployed state.

97. The myocardial cooling device of claim 96 wherein said inflatable bladder is insertable through a cannula having an internal diameter of 12 millimeters when in said predeployed state.

98. The myocardial cooling device of claim 96 further comprising a sheath which covers said inflatable bladder when in said predeployed state.

99. The myocardial cooling device of claim 98 wherein said inflatable bladder is extended from said sheath when in said deployed state.

100. The myocardial cooling device of claim 96 wherein said inflatable bladder is inflated with a cooling fluid when in said deployed state.

101. The myocardial cooling device of claim 96 further comprising a means for circulating a cooling fluid through said at least one cooling passage.

102. The myocardial cooling device of claim 115 wherein the shaft further comprises a second lumen in communication with an outlet of said at least one cooling passage, whereby the cooling fluid may be delivered through the first lumen into the cooling passage, circulated therethrough, and received through the second lumen.

103. The myocardial cooling device of claim 96 wherein the at least one cooling passage comprises a plurality of horizontal passages interconnected by a series of vertical passages.

104. The myocardial cooling device of claim 96 wherein the inflatable bladder has a curvature in the deployed state selected to conform to an exterior surface of the heart.

105. The myocardial cooling device of claim 98 wherein the inflatable bladder is configured to twist into a helical configuration when contained within the sheath in the undeployed state.

106. A surgical retraction device comprising:

a shaft having a proximal end and a distal end;

a contact surface adjacent said distal end for atraumatically contacting living tissue within a body cavity; and

a means for applying a vacuum at said contact surface.

107. The surgical retraction device of claim 106 wherein said means for applying a vacuum at said contact surface comprises a passage from said proximal end to said distal end of said shaft, said passage being in fluid communication with said contact surface.

108. The surgical retraction device of claim 106 wherein said contact surface further comprises a friction-increasing surface.

109. The surgical retraction device of claim 106 wherein said contact surface is flexibly mounted to said distal end of said shaft.

110. The surgical retraction device of claim 106 wherein said contact surface is mounted at an angle of approximately 45 degrees to a longitudinal axis of said shaft.

111. The surgical retraction device of claim 108 wherein said friction-increasing surface comprises a multiplicity of bumps extending from said contact surface.

112. The surgical retraction device of claim 106 wherein said contact surface is concave.

113. The surgical retraction device of claim 110 wherein said contact surface is disposed on a distal side of a cup-shaped member attached to said distal end of said shaft.

114. The surgical retraction device of claim 111 wherein said cup-shaped member is flexible.

115. The surgical retraction device of claim 112 wherein said cup-shaped member is sufficiently flexible to conform to a surface of a patient's heart when a vacuum is applied between said contact surface and the surface of the heart.

116. The surgical retraction device of claim 113 wherein said contact surface further comprises a friction-increasing surface.

117. The surgical retraction device of claim 116 wherein said friction-increasing surface comprises a multiplicity of bumps extending from said contact surface.

118. The surgical retraction device of claim 106 wherein said shaft and contact surface are configured to be positioned through an access port in an intercostal space.

119. The surgical retraction device of claim 118 wherein access port has a diameter of 12 mm.

120. The surgical retraction device of claim 118 wherein the contact surface is on a contact member attached to the distal end of the shaft, contact surface being larger than the access port in an unstressed condition, the contact member being collapsible so as to be positionable through the access port.

121. A surgical retraction device for retracting a body structure within a body cavity, the body structure having a curved external surface, the surgical retraction device comprising:

a rigid shaft having a distal end and a proximal end, the shaft having a contact surface near the distal end with a curvature selected to conform to the external surface of the body structure; and

a textured, porous material attached to the contact surface for frictionally engaging the body structure;

wherein a distal portion of the shaft including the contact surface and porous material may be introduced into the body cavity through an access port with a diameter of at most about 12 mm.

122. The surgical retraction device of claim 121 wherein the porous material comprises a fabric pad.

123. The surgical retraction device of claim 121 wherein the porous material comprises surgical gauze.

124. The surgical retraction device of claim 121 wherein the porous material comprises a foam pad.

125. The surgical retraction device of claim 121 wherein the porous material is wrapped around a distal portion of the shaft.

126. The surgical retraction device of claim 121 wherein the contact surface comprises a lateral surface of a distal portion of the shaft, the distal portion of the shaft having a diameter of less than about 10 mm.

127. The surgical retraction device of claim 121 wherein the porous material covers the distal end of the shaft.

128. The surgical retraction device of claim 121 further comprising an aspiration lumen within the shaft extending from the proximal end to at least the contact surface, and a plurality of holes in the contact surface in communication with the lumen, whereby a vacuum may be applied through the aspiration lumen and the holes to withdraw fluids from the porous material.

129. The surgical retraction device of claim 121 wherein at least a portion of the shaft is malleable such that the contact surface may be shaped into various curvatures.

130. A surgical retraction device for retracting a body structure within a body cavity, the retractor comprising:

a rigid shaft having a proximal end and a distal end;

a guide means along the shaft; and

a flexible band extending through the guide means so as to be slidable with respect to the shaft, the flexible band forming a loop at the distal end of the shaft and having a first end attached to the shaft and a second end extending to the proximal end of the shaft, whereby the size of the loop may be enlarged or reduced by sliding the band relative to the shaft;

wherein a distal portion of the shaft and the loop may be introduced through an access port with a diameter of at most 12 mm.

131. The surgical retraction device of claim 130 wherein the band has a rectangular cross-section.

132. The surgical retraction device of claim 130 wherein the band is metal.

134. The surgical retraction device of claim 130 wherein the loop has a friction-increasing inner surface for engaging the body structure.

135. The surgical retraction device of claim 134 wherein the friction increasing inner surface comprises a porous material attached to the band.

136. The surgical retraction device of claim 130 wherein the loop is formed around an axis which is generally perpendicular to a longitudinal axis of the shaft.

137. The surgical retraction device of claim 130 wherein the loop is formed around an axis parallel to a longitudinal axis of the shaft.

138. The surgical retraction device of claim 130 wherein the band is a superelastic alloy.

139. The surgical retraction device of claim 130 wherein the band is a shape-memory alloy.

140. The surgical retraction device of claim 130 further comprising a link pivotably coupled to the distal end of the shaft, the first end of the band being attached to the link.

141. The surgical retraction device of claim 140 wherein the link is jointed so as to have a proximal section and a distal section pivotably attached to the proximal section, the proximal section being pivotably attached to the shaft, and the distal section being attached to the first end of the band.

142. The surgical retraction device of claim 130 wherein the guide means comprises a lumen in the shaft, the band being disposed slidably within the lumen.

143. The surgical retraction device of claim 130 further comprising actuation means at the proximal end of the shaft for sliding the band relative to the shaft.

144. A surgical tunneling instrument for tunneling between adjacent body structures in a body cavity, the tunneling instrument comprising:

a shaft having a distal end, a proximal end and a lumen therebetween;

a linkage extending through the lumen;

an articulating finger at the end of the shaft, the articulating finger comprising:

a first proximal member having a proximal end and a distal end opposite the proximal end, the proximal end being pivotably coupled to the shaft at a first point and coupled to the linkage at a second point laterally offset from the first point;

a second proximal member having a proximal end pivotably coupled to the shaft and a distal end opposite the proximal end; and

a distal member having a proximal end and a distal end opposite the proximal end, the distal end being configured for tunneling between the body structures, and the proximal end being pivotably coupled to the distal end of the first proximal member at a third point and pivotably coupled to the distal end of the second proximal member at a fourth point laterally offset from the third point; and

means at the proximal end of the shaft for moving the linkage relative to the shaft, whereby the first proximal member pivots relative to the shaft about the first point and the distal member pivots relative to the first proximal member about the third point.

145. The tunneling instrument of claim 144 further comprising means at the distal end of the distal member for grasping a vascular structure.

146. The tunneling instrument of claim 145 wherein the grasping means comprises a hook.

147. The tunneling instrument of claim 145 wherein the grasping means comprises a snare.

148. The tunneling instrument of claim 145 wherein the grasping means comprises a pair of grasping jaws, at least one of said grasping jaws being movable with respect to the other.

149. The tunneling instrument of claim 145 wherein the first and second points are separated by a first transverse distance, and the third and fourth points are separated by a second transverse distance, the first and second transverse distances being less than about 10 mm.